

U.S. Pat. Appl'n 10/731,264  
Response

### REMARKS

Claim 126 has been rejected under 35 USC § 103(a) as anticipated by Loibl (5,505,054). The Examiner maintained that it would have been obvious to incorporate the container of the device with a household refrigerator. Applicant respectfully disagrees and submits the following, along with a Declaration of the inventor pursuant to 37 CFR § 1.132. In brief, the claimed invention of Claim 126 is not obvious in light of Loibl '054, as the instant invention does provide several advantages and solves specific problems over the prior art.

It is wholly nonobvious to incorporate the housing of the claimed invention in a household refrigerator. There is no teaching or suggestion in Loibl '054 to do so. Indeed, the instant inventor is the same inventor as that of Loibl '054, and he had not thought of the instant claimed invention when prosecuting the '054 patent (Loibl Declaration, ¶ 2). He is clearly one of (at least) ordinary skill in the art, with both a bachelor's and master's degree in engineering from the prestigious Cooper Union (Loibl Dec., ¶ 1). Also, he has been working in this field for well over a decade. (Id.) The prior art must provide some motivation for making the claimed modification in order for it to render obvious the claimed invention; otherwise, the Examiner is using impermissible hindsight and using Applicant's own teachings against Applicant in determining what is obvious.

There are many advantages to making the housing of the invention part of a household refrigerator, none of which are taught or suggested by the '054 patent. In overview, some of the main advantages of making the housing of a rapid chilling device part of a household refrigerator include the following: 1) it eliminates the need to add ice manually to fuel the process; 2) it utilizes an existing compressor already present in nearly every household; 3) it creates a more energy-efficient way to chill beverages than the original process; and 4) it represents a convenient location that occupies no additional space in a home. (Loibl Dec. ¶ 2.) Further, it has been deemed desirable by major refrigeration manufacturers. (Id.)

The first advantage of the instant invention is that it eliminates the need for the addition of external ice. For the prior patented stand-alone model of the '054 patent, the user is required to add ice for each beverage chilled. The invention uses the existing cooling capability of the refrigerator and eliminates the need for the user to monitor ice consumption. Any ice needed for the process is already made by the refrigerator and is ready for use in the rapid cooling process. Further, with the stand-alone model, the user needs to remove water frequently from the reservoir

U.S. Pat. Appl'n 10/731,264  
Response

as the ice melts and more ice is added. By contrast, when the inventive process is integrated with a household refrigerator, the reservoir can be maintained at a much cooler temperature, and much less water need be used. The instant invention is more convenient and saves the end user time. (Loibl Dec. ¶ 3).

Another advantage of the claimed invention over the prior art is that it makes use of an existing appliance in nearly every home. A refrigerator is a necessity in most households. The benefits of rapid beverage cooling are gained without adding an additional appliance, thereby conserving countertop space. A compressor might be added to the original stand-alone appliance of the '054 patent, however that would drive up the cost of the appliance prohibitively. By contrast, the incremental cost of incorporating the process into a household refrigerator is anticipated to be less than that of even purchasing a separate stand-alone appliance. (Loibl Dec. ¶ 4).

A third advantage of the invention of Claim 126 over the teachings of the '054 patent is that the instant invention is more energy efficient. The stand-alone appliance described in the '054 patent, which requires the user to add ice and water, uses more energy than by chilling a beverage in a system designed for a refrigerator. For the stand-alone unit, the user adds ice and water. The ice requires a certain amount of energy to be produced in a freezer. Some of this energy is wasted when water is added to the reservoir. Energy is also wasted from heat entering the system from the ambient air, which occurs every time a beverage is placed in or removed from the stand-alone device. Furthermore, energy is wasted when the user dumps the excess ice and water from the machine after the consumer is finished with it. When using the instant claimed in-refrigerator model, only the ice needed for the process is used. Less ice is wasted, and therefore less energy is consumed creating the reduced quantity of ice. Also, the reservoir in the household refrigerator model is typically not exposed to ambient air. (Loibl Dec. ¶ 5).

Still another advantage of the instant invention is that it possesses great convenience. The refrigerator represents a convenient location to incorporate the inventive process. Instead of taking the stand-alone device out of the closet or pantry when needed and then having to plug in the unit, the refrigerator model is ready to go at all times. This also frees up countertop space for other devices or for food preparation. (Loibl Dec. ¶ 6)

To date, Applicant's company, Revolutionary Cooling Systems (RCS), has had communication with several major household refrigerator manufacturers, all of whom have

U.S. Pat. Appl'n 10/731,264  
Response

expressed interest in pursuing the technology. One of the largest has supported the project with donations of several thousand dollars worth of equipment. (Loibl Dec. ¶ 7.)

The Examiner also mentioned something curious in the Office Action: "[O]ne of ordinary skill in the art would have expected Application's invention to perform equally well with a portable refrigerator because both refrigerators perform the function of rapidly cooling canned beverages equally well considering the typical size and shape of a canned beverage." (Office Action, at 3.) Applicant takes issue with several aspects of this statement. First, it is not immediately understood to what the Examiner is referring by the term "portable refrigerators." It is suspected that he means something like a small cubic refrigerator as found in many small offices or college dormitory rooms. There is nothing in Claim 126 to indicate that portability is an attribute of the claimed invention. Indeed, since the claim indicates that the invention is contained within a household refrigerator, e.g., the large, "fridge-freezer" as depicted in Fig. 9A, for example, is expressly indicated (note: the presence of a freezer portion is not necessarily required).

Next, it is not known what the Examiner means by "both refrigerators" in the above sentence. Does he mean both regular-sized household refrigerators and smaller, portable refrigerators? If that is the case, then neither performs the function of rapid beverage cooling. In a refrigerator, it takes about four hours for both cans and bottles to be brought from room temperature (~25 °C) to drinking temperature (6°C). In a freezer, it takes about 45 minutes. Sitting in ice water, it takes about 20 minutes for cans and 25 minutes for bottles. By contrast, it takes about one minute to chill canned beverages and about three minutes to chill bottled beverages. (source: <http://www.coopercooler.com/faq.html>). That is rapid cooling, and it is not provided by household or portable refrigerators.

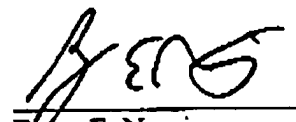
In view of the foregoing, Applicant submits that Claim 126 as previously presented recites patentable subject matter and that the application is in condition for allowance. **Applicant respectfully requests a telephonic interview with the Examiner to discuss any further changes that might be deemed necessary.** Prompt and favorable action toward the issuance of a patent is earnestly solicited and believed to be fully warranted. Applicant hereby petitions for any extension of time which may be required to maintain the pendency of this case, and any additional required fee, except for the Issue Fee, for such extension is to be charged to Deposit Account No. 02-2105.

**U.S. Pat. Appl'n 10/731,264  
Response**

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